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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/706,068	11/03/2000	Abdellatif Bellaouar	TI-31011	6639

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EXAMINER

CHANG, EDITH M

ART UNIT	PAPER NUMBER
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2637

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/706,068

Applicant(s)

BELLAOUAR, ABDELLATIF

Examiner

Edith M Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see pages 2-4, filed November 16, 2004, with respect to the rejection(s) of claim(s) 1-20 under 35 U.S.C. 103 have been fully considered and are persuasive. Therefore, the final rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Dent (US 6,091,303).

Claim Objections

2. Claims 1-10 and 16 are objected to because of the following informalities:

Claim 1, line 8: "an" is suggested changing to "said"; and line 9: "a plurality" is suggested changing to "the plurality".

Claim 6 & Claim 7, line 1: "provided" is suggested changing to "wherein the apparatus is composed".

Claim 6 & Claim 16, "UMTS" is suggested spelling out to define the term "UMTS".

Claim 8, line 1: "including" is suggested changing to "further including"; line 3: "including a further" is suggested changing to "comprising a"; line 4: "a further" is suggested changing to "a"; and line 5: "said further" is suggested changing to "said".

Claim 9, line 1: "the further" is suggested changing to "the"; and line 2: "a further" is suggested changing to "a".

Claims 2-5, and 10 are directly or indirectly dependent on the objected claim 1.

Appropriate corrections are required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-5, 8-15, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bjerede et al. (US 5722040) in view of Dent (US 6,091,303).

Regarding **claims 1 & 11**, in FIG.2, Bjerede et al. teaches an apparatus and its methods for producing an RF transmission signal including a plurality of frequency channels (column 1 lines 60-65, column 5 lines 45-50, column 6 lines 22-26, where the apparatus includes multiple frequency channels, the channel spacing is suggested). Referring to Fig. 9,

an IF processor (^{elements}~~elements~~ 96, 50, 98, 100, 104, 106 and 64) having a first input for receiving a baseband signal from a baseband processor (26) and a second input for receiving a first signal from ^{the}~~an~~ output of a local oscillator 100 to produce an IF signal to a RF processor 30;

The RF processor (elements 52, 114, 54 and 118) having a first input coupled to the IF processor (28) for receiving the IF signal and a second input for receiving a second signal from the output of a synthesizer 54 to produce an RF transmission signal including a plurality of frequency channels separated by a desired frequency channel spacing (column 5 lines 45-50,

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where the channel spacing is suggested), wherein the local oscillator 100 is the first frequency synthesizer coupled to the second input of the IF processor for providing the first signal;

Bjerede fails to teach that (see the claimed subject matter recited in lines 11-14 of claim1). However, Dent teaches a phase locked loop (12) or frequency synthesizer for baseband signals (I and Q in the modulator 14) to generate an IF signal 42 in Fig.1 and column 4 lines 20-30, wherein the I and Q signals are mixed with a combining signal 20 generated from the phase-locked loop 12 with a comparison frequency generator 32 to generate the combining signal at one of a plurality of possible frequencies responding to a raster set (F_{ref}/M), then translate the IF signal to a RF signal to the power amplifier 66 for transmission. As the Dent providing the frequency synthesizers to translate the signal to IF and RF to transmit (column 4 lines 35-43), at the time of the invention, it would have been obvious to a person of ordinary skill in the art to implement the frequency synthesizer taught by Dent in the element 100 of Bjerede et al.'s apparatus in order to generate a combining signal at one of plurality of possible frequencies separated from one another by the divider 30 IF for the purpose of reducing the phase noise of the PLL in the radio system (column 1 lines 5-10).

Regarding **claims 2-3 & 12-13**, the combined/modified Bjerede's apparatus with Dent's teaching teaches the comparison frequency is an integer multiple of the raster component or equal to the raster component ($N \times F_{ref}/M$ of Fig.1 wherein the F_{ref}/M is the raster).

Regarding **claims 4-5, 10, 14-15, & 20**, the combined/modified Bjerede's apparatus with Dent's teaching teaches an integer/type-1 phase locked loop, however Dent teaches an integer/type-1 phase locked loop (Fig.1 having $\div N$ feedback and the phase detector 32 being coupled to the loop filter 36 without use of a charge pump).

Regarding **claims 8 & 18**, Bjerede et al discloses a second frequency synthesizer coupled to the second input of said RF processor for providing the second combining signal (54 FIG.2) but does not specify the comparison frequency generator in the second frequency synthesizer. However, Dent teaches the phase locked loop for the baseband signal (I and Q in the modulator 14) to generate an IF signal 42 in Fig.1 and column 4 lines 20-30, wherein the I and Q signal is mixed with the combining signal 20 generated via the phase-locked loop element 12 with the comparison frequency generator element 32 to generate the combining signal at one of a plurality of passible frequencies responding to the raster set (F_{ref}/M), then translate the IF signal to RF signal to the power amplifier 66 to transmit. As the Dent providing the frequency synthesizers to translate the signal to IF and RF to transmit (column 4 lines 35-43), at the time of the invention, it would have been obvious to a person of ordinary skill in the art to implement the frequency synthesizer taught by Dent in the frequency synthesizer 54 of Bjerede et al.'s apparatus to generate RF signal for the purpose of reducing the phase noise of the PLL in the radio system (column 1 lines 5-10).

Regarding **claims 9 & 19**, in FIG.9 element 54, Bjerede et al discloses the comparison frequency corresponds to a component of the desired frequency channel spacing other than the raster component (column 9 lines 25-33, where the 300k is the desired frequency channel spacing set by RF).

5. Claims 6 & 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bjerede et al. (US 5722040) in view of Dent (US 6,091,303) as applied to claims 1 and 11 above, and further in view of Khlat (US 6069535).

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Regarding **claims 6 & 16**, Bjerede et al. does not explicitly specify the channel spacing for UMTS, however Khlal teaches the PLL frequency synthesizer for UMTS (FIG.1, column 49-55). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the UMTS teaching by Khlal in the Bjerede et al.'s apparatus to provide a UMTS transmitter. The suggestion/motivation for doing so would have been to provide an efficient and low noise fractional-N synthesizers to the UMTS transmitter (column 1 lines 43-45, column 2 lines 13-17). Therefore, it would have been obvious to combine Khlal's teaching with Bjerede et al. to obtain the invention as specified in the claim(s).

6. Claims 7 & 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bjerede et al. (US 5722040) in view of Dent (US 6,091,303) as applied to claims 1 and 11 above, and further in view of Boesch (US 6556545 B1).

Regarding **claims 7 & 17**, Bjerede et al. does not explicitly specify the channel spacing for WCDMA, however Boesch teaches the phase locked loops/synthesis for WCDMA (60 FIG.2, column 1 lines 15-21, column 4 lines 16-35) provided in a WCDMA transmitter. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the WCDMA teaching by Boesch in the Bjerede et al.'s apparatus to provide a WCDMA transmitter. The suggestion/motivation for doing so would have been to provide a WCDMA transmitter with an efficient and low cost radio apparatus (column 2 lines 3-11). Therefore, it would have been obvious to combine Boesch's teaching with Bjerede et al. to obtain the invention as specified in the claim(s).

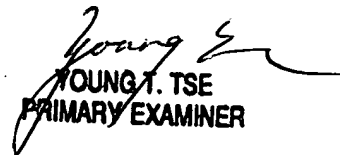
Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M Chang whose telephone number is 571-272-3041. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jayanti Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang
November 23, 2004


YOUNG T. TSE
PRIMARY EXAMINER